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ABSTRACT

This discussion argues that the development of children's definitions is shaped by a particular orientation to word meaning characteristic of literate language use. This orientation is marked by increased attention to the linguistic form of expressions. To test this argument, a study was undertaken in which eight common nouns, familiar to most preschool children, were used to elicit definitions from children. Results indicate that children's attention to the linguistic form of the definitional question influences the structure of their definition. When the form is emphasized, a greater number of superordinate terms are elicited. Children also begin marking attention to the response form implied by the question--a noun phrase complement--prior to using the true superordinate terms. These nominal phrase markers appear to serve as a placeholder or bridge leading from the early functional responses of the preschooler to the conventional superordinate category definition typical of our literate culture, exemplified in the dictionary definition. Children's early definitions reflect the oral contexts of acquisition but with schooling and literacy gradually become close approximations of the archival definitional form prevalent in literate culture. (Author/JK)

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Definitions: The Conventionalization of Word Meaning

by

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Definitions: The Conventionalization of Word Meaning

Rita Watson

It is well-known that skill in defining words is highly correlated with overall scores on tests such as the Wechsler scales (Wechsler, 1958; 1974), that are strongly associated with success in school. But what are the cognitive processes that underlie such definitions?

It has long been assumed that definitions reflect children's underlying conceptual development (Vygotsky, 1962). Not surprisingly, criteria for evaluating definitions in standardized vocabulary tests state that it is what the person knows about the meaning of the word that is important (Terman, 1937; Terman & Merrill, 1973; Wechsler, 1958; 1974). The linguistic form of the definitional expression is supposedly disregarded in favour of the content, or meaning, of the expression.

However, it is necessarily the case in any language production task that the linguistic form of an expression influences the meaning that is ascribed to that expression. A brief examination of sample responses used for scoring standardized tests reveals that completeness and conventionality of linguistic expressions does affect the evaluation of the response. It is difficult to explain, for example, why the definition "up by the moon" for the word Mars is acceptable, while "things up in the sky--them round balls" is not (Terman & Merrill, 1973) except by appealing to linguistic form. Perhaps the plural markers in the words "them" "things" and "balls" are at fault--an elliptical form of the same expression that deletes these terms--"up in the sky, round"--actually appears superior to the acceptable response above.

Many such examples appear in the scoring criteria of standardized vocabulary tests. They attest to the difficulty of identifying consistent,

semantically principled rules by which to judge the adequacy of definitions across all words in a given test. The important point for the present discussion is that the form of a linguistic expression is an important factor in assessing the adequacy of a definition, in spite of claims to the contrary. This is for the simple reason that in language production tasks such as definitions the only way we know that a person knows the meaning of the word is if they can express the meaning explicitly in linguistic form.

The form of explicit expressions of word meaning in definitions changes with age and schooling. When preschool children are asked to define words their answers are typically experientially based, functional descriptions. Older children and adults usually include superordinate categories and characteristic, differentiating features, much like the structure of a formal dictionary definition. This change in the structure of definitions is well-known and well-documented but poorly understood. Does it simply reflect the more general changes inherent in cognitive development, or does it reflect a particular skill, a particular way of talking about words?

Consider the following example from a transcript of discourse in a kindergarten classroom:

Teacher: What is a lullaby?

Child 1: It helps you to go to sleep at night. (a)

Teacher: But what is it?

Child 2: It's a song. (b)

Teacher: That's right.

Why does the teacher accept (b), calling it "right", and implicitly reject response (a) by repeating her question? Most obviously, response (b) places the term within a superordinate category or genus, like

a dictionary definition, while response (a) describes a function of the referent or use of the word with which the child is familiar. The response that is acceptable is the closest in structure to the dictionary definition. The example itself is not unusual. Similar instances of teacher's eliciting or supplying statements that approximate the archival (dictionary) definitional form abound in observations we have made in three different kindergartens in three different schools. Could this apparently systematic bias in the school context effect the well-known development of children's definitions from structures like (a) to structures like (b)?

There is another difference between the two children's responses. Response (a) glosses the actual question, not completing the supplied verb is with an accurate complement but using a whole new construction: It helps you (to go to sleep at night). In response (b) the child is preserving a representation of the linguistic form of the question when giving a response: It is a song. The same verb is used, the child simply pronominalizes the subject and supplies a complement that is both accurate and succinct.

Thus, the definition that is more "correct" is, first, the one that includes the superordinate category term "song" and, secondly, the one that expresses the conventionalized linguistic form associated with definitions. This conventional definitional form is NP₁ (it, a lullaby) is NP₂ (a song), where NP is a noun phrase, and NP₂ is equivalent to or a paraphrase of NP₁ (Bierwisch & Kiefer, 1969). It has been argued elsewhere that attention to linguistic form is associated with literacy (Olson, 1977; in press). The acquisition of literacy is said to effect a differentiation of the meaning of words from a speaker's intentions in uttering those words on a particular occasion.

This differentiation leads to the notion that words have meaning in and of themselves. The very notions of word and definition are historically associated with literacy (Watson & Olson, in preparation).

In what follows, it shall be argued that the development of children's definitions from structures like (a) to structures like (b) above, is shaped (although not wholly determined) by a particular orientation to word meaning characteristic of literate language use. This orientation is marked by increased attention to the linguistic form of expressions.

The Development of Children's Definitions

As children acquire literacy skills in the early school years, their responses to the definitional questions "What is X?" or "What does X mean?" (where X is a word) change. The predominance of functional terms, such as "cat: you pet it" or "flower: it smells nice", in preschool children's definitions has been widely noted (Al-Issa, 1969; Anglin, 1977; Krauss, 1952; Litowitz, 1977; Nelson, 1978; Norlin, 1981; Feifel & Lorge, 1960; Wolman & Barker, 1969). These early definitions emphasize the functional (and to a lesser extent, featural) characteristics of real-world contexts, and particular referents (things in the world to which the word refers) of the word in question (Anglin, 1977; Nelson, 1978). In other words, early definitions are descriptions of things and events, or of the cognitive representations of these things or events.

Anglin (1977) found that these early definitions are not well coordinated with the implicit criteria that children use to assign the word to objects in categorization tasks. After correctly defining food as "something you eat", for example, they may not identify a lollipop as food. Also, when the attributes in the child's definition are not central or

The expression "black", without the shared, supporting context of ordinary discourse does not differentiate "dog" in a criterial way from the many other things that could occur in diverse contexts in which the word "dog" is used. The child's incomplete definition thus reflects an orientation to word meaning that is still tied to the contexts of oral language. The child is not defining the word itself, since until the word is recognized as an autonomous, meaning-bearing unit of language, no need for a full, explicit expression of its meaning is recognized.

A second characteristic of children's definitions that implicates the effects of attention to linguistic forms in the structure of definitions is that the young child does not preserve the linguistic form of his "definition" when he makes semantic decisions involving the meaning of the word, as was illustrated above with "lollipop". The child appeals to general knowledge in making categorization decisions as they arise in the world, and recognizes no need to adjust his definition when faced with a particular referent that conflicts with it. In contrast, literate adults hold their definition in mind when categorizing referents, and will change their definitions to accomodate unusual referents, or change their categorization of referents to conform to their definitions. Thus, when asked if a penguin is a bird, for example, adults will modify their definition of bird to exclude the criterion of flight, or when asked if a person is an animal, they will hold their definition constant and include "person" in the category "animal" (cf. Anglin, 1977).

Thirdly, the child, used to oral language contexts, may not interpret the definitional question as a request for a full, explicit expression of word meaning. Anglin (1977) noted that children three years old and younger

had difficulty understanding the nature of the question. When talking to grade one students informally in a classroom situation, we found that the question "What is an elephant?" was met with laughter, and disbelief: how could an adult not know what an elephant was? To these children, asking "What is X" meant that you didn't know and you were trying to find out. It was not seen as a request for an explicit expression of the meaning of the word "elephant". To give a definition of the word "elephant" requires more than the knowledge of what an elephant is, or the ability to use the word appropriately. It requires the recognition that this is a metalinguistic question--a question about a word not about an object--and hence calls for a full, explicit specification of meaning in linguistic form. The child must come to recognize the nature of the task.

Three characteristics of preschool children's definitions have here been said to reflect a lack of attention to linguistic form. First, definitions such as "dog: black", and other truncated expressions of meaning common to oral language, imply that children do not recognize that a complete, explicit expression of word meaning in linguistic form is required to define a word. This cannot be explained by appeal to general knowledge since, as will be discussed below, children often know more about a word's meaning than they express in definitions. Secondly, the form of children's definitions is often not consistent with the criteria they will use in applying the word to an object. That is, they do not hold the linguistic expression of meaning constant across diverse contexts of word use. Finally, children take the actual definitional question as a question about things or events, that is, about what speakers mean when they use a word in context. They do not see it as a question about word meaning.

Around the time most children start school (5 to 6 years of age) the structure of definitions begins to change. A major feature of this change is the emergence of superordinate categories, and the concomitant decrease in the proportion of functional responses (although these do not disappear altogether) (Al-Issa, 1969; Feifel & Lorge, 1960; Wolman & Barker, 1969). Wolman and Barker (1969) for example, found that while 78% of 4 year olds' definitions were functional, by 12 years of age, only 25% were functional. Anglin compared the incidence of superordinate terms in preschool children's definitions with that in adult's definitions and found a dramatic difference. Approximately 90% of the definitions he collected from adults contained superordinate category terms, while only 18% of the children's definitions (5 years old and younger) contained any reference to superordinate categories. However, it is curious that preschool children may know that, say, a dog is an animal, and yet not include "animal" in their definition of the word "dog" (Anglin, 1977; Nelson, 1982). Even questions designed to elicit expression of superordinate category membership ("what kind of a thing is X?") may fail to elicit this knowledge (Anglin, 1977). Why is it that the form of children's definitions changes with age and schooling to include more superordinate terms, when it seems that even very young children have this knowledge available?

The present study explores the hypothesis that formal schooling and the concomitant acquisition of literacy skills has an impact on the structure of children's definitions. This impact is marked by the child's increasing attention to the linguistic form both of the definitional question and of the child's own response.

Description of Study

Eight common nouns, familiar to most preschool children (Rinsland, 1945), such as "cat", "flower" etc., were used to elicit definitions from children. First, the children were asked the standard definitional question "What is (an) X?" Next, the children were asked to "Tell more about X..", in the standard manner used for eliciting more information in the WISC-R testing procedure (Wechsler, 1974). Subsequent to these standard procedures, a simple manipulation of intonation was used to focus the child's attention on the linguistic form of the definitional question: the question was repeated, emphasizing the word is (in the manner of the teacher described above). Finally, the children were given a comprehension task, in which they simply had to answer "yes" or "no" to questions such as "Is a cat an animal?" All the children were tested individually.

Subjects in this study were selected from schools in middle- to upper-middle-class neighborhoods. Thirty-six children from Junior Kindergarten (pre-readers, mean C.A. 5 years), thirty-seven from grade one classrooms (beginning readers, mean C.A. 7 years) and forty from grade four classrooms (readers, mean C.A. 10 years) were included in the final sample.

Results and Discussion

When the emphasized version of the definitional question was added to the standard procedure for eliciting definitions, the average number of superordinate responses increased, even with the youngest children.

Figure 1 shows the mean number of superordinates per child (out of a maximum possible of eight, one for each of eight words) used by the children in the three groups. For question 1, "What is an X?", the mean number of superordinate responses was .4 in JK, increasing to 1.8 in grade one and 2.9 in grade four. When the standard general probe "Tell more about X" was added, it failed to increase the number of superordinate terms elicited. When the

Insert Figure 1 about here

question that emphasized the linguistic form of the question, "What is an X?", was added, the number of superordinate responses increased to 1.0 in JK, to 2.4 in grade one, and to 4.1 in grade four. It is unlikely that this effect was simply due to the child indiscriminately expressing additional knowledge, since the non-specific probe had no comparable effect. Rather, the emphasis on linguistic form seems to elicit more of a particular type of response -- the type that has been widely observed to increase with age and schooling.

Figure 1 also illustrates that even the youngest children easily recognize the superordinate category for a given term, even when the term does not appear in responses to repeated requests for definitions. The structure of the children's definitions is thus not a complete expression of their underlying conceptual knowledge about the referent of a term. Why is it that known information is not always included in early definitional expressions? The appearance of superordinates requires at least two things: first, the preservation of the linguistic form of the question predicate is, and secondly, the use of the noun or noun phrase as a complement. This is congruent with the standard definitional form (NP_1) is (NP_2), identified by Beirwisch & Kiefer (1969). When a child gives a functional definition, as was illustrated with our example "lullaby", they often disregard the response structure implied by the question. Instead of saying "a lullaby (NP_1) is a song (NP_2)" they are more likely initially to say something like "it helps you to go to sleep at night".

Expressions like "A cat is something you pet" have been treated variously as functionals (Wolman & Barker, 1969) and superordinates (Anglin, 1977). However, something here acts as a kind of placeholder. It demonstrates the knowledge that a noun phrase is required to complete the definitional statement, and as such it is closer to the archival definitional form than a simple functional.

In this view, expressions such as "something" or "a thing(that)", mark the child's emerging attention to the linguistic form of the definitional question. Specifically, they mark that a noun phrase complement is required in the response. Since "something" and "thing" are general, all-purpose category terms, they could be expected to emerge earlier than the more specific, true superordinate category terms, if the children are in fact learning to recognize the linguistic form required in responses to the definitional question.

When the incidence of these "nominal phrase markers" (something (that)...; a thing(that)...) is examined, it appears that they do emerge prior to true superordinate terms.

Figure 2 compares the mean number of responses with nominal phrase markers to the mean number of superordinate responses. It is clear

Insert Figure 2 about here

that the nominal phrase markers are more numerous even with the youngest children. The actual mean of incidence begins to drop in grade 4, as the number of superordinate responses increases, but nominal phrase markers still appear to account for an increasing proportion of the non-superordinate responses.

A clearer picture of how the emergence of superordinate terms is related to the emergence of nominal phrase markers is presented in Table 1.

Insert Table 1 about here

For this comparison, children were identified as demonstrating a low incidence of use of either type of term (use on three definitions or less out of a possible eight) or a high incidence of use (use on four or more definitions out of eight).

In Junior Kindergarten, not surprisingly, 70% of the children demonstrate a low incidence of both terms. 50% of the Junior Kindergarten children did not use either term on any of their definitions. However, 28% of the children have a high incidence of nominal phrase markers in their definitions, while only 2% have a high incidence of superordinate terms. In grade one, the proportion of children with a high incidence of nominal phrase markers has increased to 57%. The number of children with a high incidence of superordinate terms has also increased, but only to 13%. Nominal phrase markers thus seem to appear earlier and with higher frequency than superordinate terms in Junior Kindergarten and grade one.

By grade four, the number of children using a high incidence of nominal phrase markers begins to decrease slightly, to 50%. This occurs as the number of children with a high incidence of superordinate responses increases to 25%. This pattern suggests that when children use a high number of true superordinates, the incidence of nominal phrase markers is low, and vice versa. Furthermore as the incidence of superordinate terms increases, it appears to be at the expense of high nominal phrase marker usage. The correlation between superordinate and nominal phrase marker usage supports this interpretation. As usage of both terms increases, a pattern of negative correlations emerges: .08 in Junior Kindergarten, -.4 in grade one and -.5 in grade four.

These results are consistent with the view that children begin marking the linguistic form of their responses to definitional questions by using a general nominal phrase marker, such as "something that..." or

"a thing that..." before they begin using superordinates. When children begin using a high number of superordinate terms, the incidence of nominal phrase markers begins to drop, although nominal phrase markers continue to account for a substantial proportion of responses among "low-superordinate" children.

It thus appears that children's attention to the linguistic form of the definitional question influences the structure of their definition: When the form is emphasized, a greater number of superordinate terms are elicited. Children also appear to begin marking attention to the response form implied by the question--a noun phrase complement--prior to using the true superordinate term. These nominal phrase markers thus appear to serve as a placeholder, or 'bridge', leading from the early functional responses of the preschooler to the conventional superordinate category definition typical of our literate culture, exemplified in the dictionary definition.

Schooling and Definitions

We return finally to the issue of why definitions are so important to formal schooling. Surely knowing how to use words productively and comprehend words as they are typically used is more important than simply knowing how to define words. But if this is so, why does schooling involve discourse episodes of the form we mentioned earlier? Here is another example from our transcripts:

Teacher: What's cancer?

Child 1: A little tiny bug that eats your leg away. (a)

Child 2: My brother's going to get a cancer because he smokes. (b)

Teacher: Cancer is really a terrible disease.

In response (a) a noun phrase (NP_2) is used as a complement to the implicit (NP_1) "Cancer is...". It reflects a naive hypothesis about the meaning of the word that captures the organic, destructive properties of the referent. It both preserves the linguistic form and provides a nominal construction, and in form at least, approximates the archival structure.

Response (b) on the other hand, could be classified as a functional response. This child is embedding the word in a particular meaningful context--she may have heard the word cancer only in reference to her brother's smoking, or she may be repeating a particular expression in which she has heard the word cancer used. In any case, the implied linguistic form (NP_1 is a...) is not preserved, and of course, is not completed with (NP_2).

The teacher's expression "really" implies that the children's responses did not succeed in defining the meaning of the term. Again, her bias is towards the superordinate category. Of course, the teacher is also giving the child new information--perhaps neither child knew the word "disease", nor that it applied to "cancer". However, the teacher does not choose to specify the symptoms of cancer, methods for its cure, the significance of contracting it for the victim or other information that would probably be of more interest to the children than a simple verbal label. She rather chooses to model her expression, however unconsciously she may do so, on the archival, definitional form of word meaning, that is, the standard dictionary definition.

Thus, as well as attending to the linguistic structure of the question, the child must learn to produce a response of a particular type. Of course, it is clear that underlying knowledge must affect the responses

that a child gives to a definition--you can't define what you don't know. However, it is equally clear from the results presented here and reported elsewhere (Anglin, 1977; Huttenlocher, 1974; Nelson, in press) that children know and can comprehend more about the meaning of words than they are capable of expressing. This paper has put forward an account that may at least partially explain this asymmetry; that is, the increasing attention to the linguistic form of expression that occurs with age and schooling.

What factors contribute to this increasing attention to form? First, as the child becomes literate, she begins to be introduced to new words in texts. She also begins to derive the meanings of those words from explicit definitions given by the teacher, or (less frequently) found in the dictionary. In so doing, the child is being progressively led to see the meaning of words in terms of the other terms in the lexicon rather than, as she did at the outset, seeing the meaning of terms primarily in terms of the things referred to by speakers in the shared contexts of ordinary discourse. Secondly, the child is being led to treat the language meta-linguistically--to see that words have meanings which can be examined, compared, elaborated and so on.

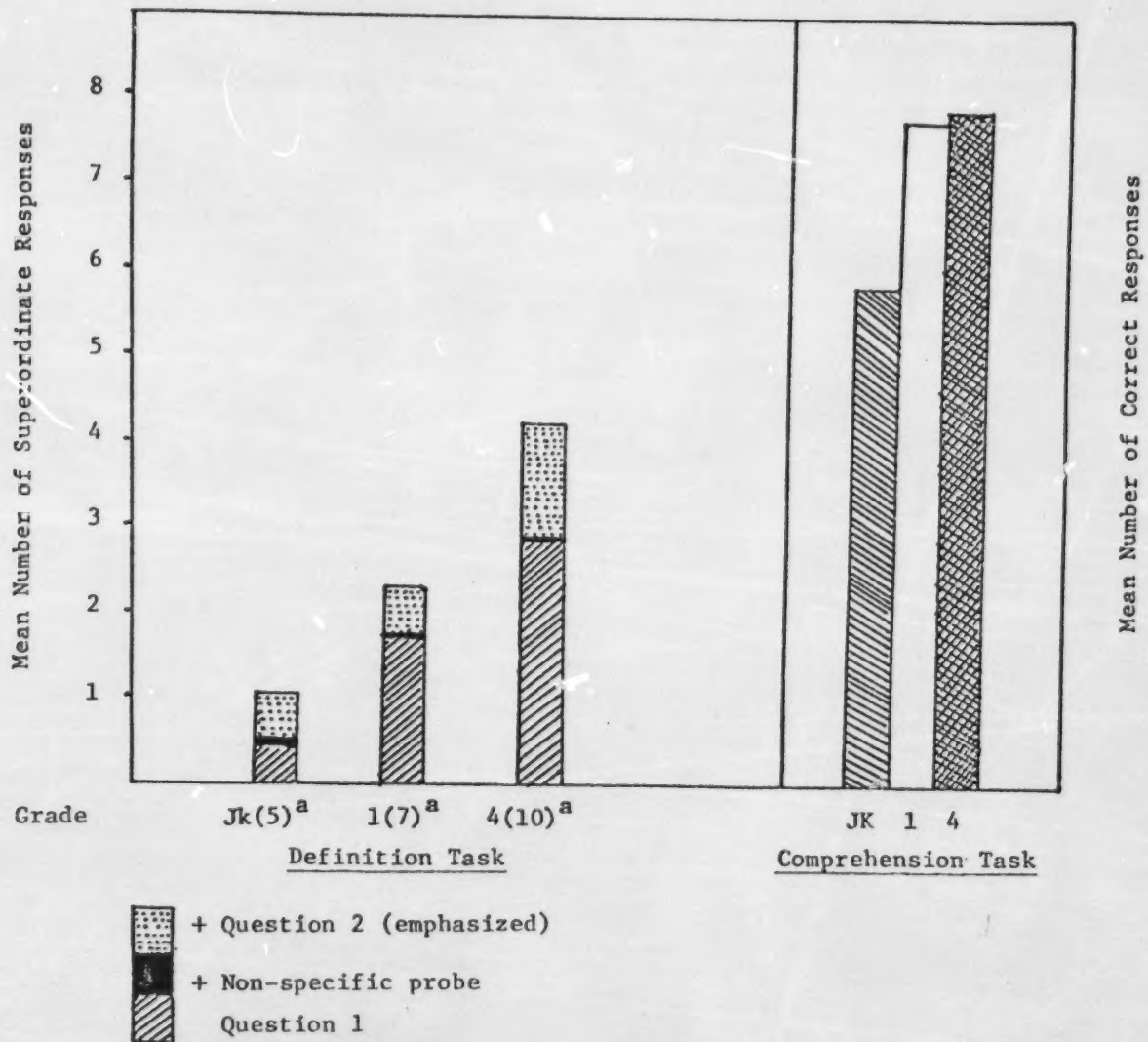
In oral contexts the speaker's intended meaning is primary and words are the implicit means for sharing those meanings. Consequently, word meanings remain implicit and depend in any case on the intention of the speaker and the situation in which the sentence occurs. With the introduction to written texts, whether in reading, in listening to the reading of texts, or in the writing of texts, the child begins to note that linguistic expressions are preserved across space and time. The necessity for specifying meanings which will circumscribe reference in all possible

contexts begins with this process. The definition represents the attempts of a literate culture to accomplish this. Children's induction into literacy, which for some children occurs long before they actually learn to read independently, effects both this awareness that words mean something apart from what speakers mean by them, and that word meanings may be specified through definitions. The school is the institution, par excellence, which systematically encourages this transformation from meaning to definition. Children's early definitions reflect the oral contexts of acquisition but with schooling and literacy gradually become close approximations of the archival definitional form prevalent in our literate culture.

Definitions are neither of concepts nor of things. Definitions are rather conventional explicit expressions of the meaning of the word itself, in terms of the other words in the lexicon. Writing systems, then, not only make the words of the language explicit, they make words part of a metalanguage, rendering them suitable for analysis and reflection. This precipitates the formalization and explication of word meaning in the definitional form.

Figure 1

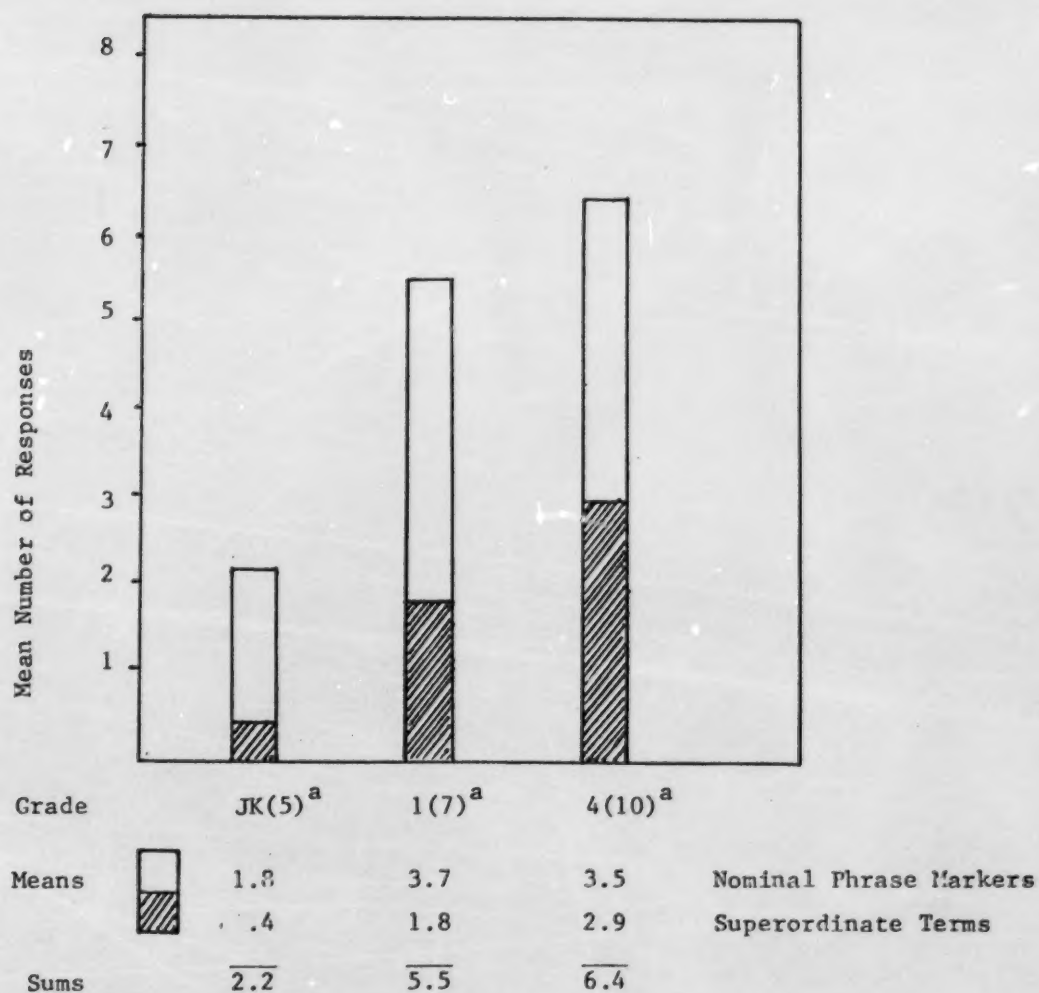
Mean number of superordinate response per child for
definitional and comprehension tasks.



Note: a = Mean C.A.

Figure 2

Mean Number of Responses with Nominal Phrase Markers
and Superordinate Terms



Note: a = Mean C.A.

Table 1

Percent of Children with Low or High Incidence of Nominal
Phrase Markers and Superordinate Terms in Definitions

Nominal Phrase Markers													
Superordinates	Low		High		Low		High		Low		High		
	Low	High	Low	High	Low	High	Low	High	Low	High			
Low	70	28	30	57	20	50							
High	2	0	13	0	25	5							
		100		100		100							
Grade	JK (5) ^a		1 (7) ^a		4 (10) ^a								

Note: Low = use of term in 3 or fewer definitions

High = use of term in 4 or more definitions

(Maximum possible = 8)

a = Mean C.A.

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